

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 07 May 2001 (07.05.01)	
International application No. PCT/US00/18509	Applicant's or agent's file reference PF-0711 PCT
International filing date (day/month/year) 06 July 2000 (06.07.00)	Priority date (day/month/year) 07 July 1999 (07.07.99)
Applicant TANG, Y., Tom et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
23 January 2001 (23.01.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer G. Bähr Telephone No.: (41-22) 338.83.38
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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PF-0711 PCT	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 18509	International filing date (day/month/year) 06/07/2000	(Earliest) Priority Date (day/month/year) 07/07/1999
Applicant INCYTE GENOMICS, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☒ furnished subsequently to this Authority in computer readable form.

☒ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☒ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☒ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 00/18509

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claim 18 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.: 20, 21, 23, 24
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-28 all partially

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: {1-28 all partially}

An isolated polypeptide comprising amino acid sequence SEQ ID NO: 1 (DETX-1), an isolated polynucleotide encoding said polypeptide (SEQ ID NO: 3). A cell, a transgenic organism, an antibody, a pharmaceutical composition, methods for producing a polypeptide, for detecting a target polynucleotide, for treating a disease and for screening compounds.

2. Claims: {1-28 all partially}

same as invention 1 but comprising SEQ ID NO: 2 and 4 (DETX-2).

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 20, 21, 23, 24

Claims 20, 21, 23 and 24 refer to an agonist or antagonist of the polypeptide without giving a true technical characterization. Moreover, no such compounds are defined in the application. In consequence, the scope of said claims is ambiguous and vague, and their subject-matter is not sufficiently disclosed and supported (Art. 5 and 6 PCT). No search can be carried out for such purely speculative claims whose wording is, in fact, a mere recitation of the results to be achieved.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C07K14/47 A61K38/00 G01N33/68 C12Q1/68
 C12N15/11 C07K16/18 A01K67/027

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, STRAND

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MIYAZAKI TAKASHI ET AL: "Molecular cloning of a novel thyroid hormone-responsive gene, ZAKI-4, in human skin fibroblasts." JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 271, no. 24, 1996, pages 14567-14571, XP002152090 ISSN: 0021-9258 the whole document	1,3,6,7, 9-15
A	--- US 5 874 248 A (CORLEY NEIL C ET AL) 23 February 1999 (1999-02-23) the whole document --- -/--	1-19,22, 25-28

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

7 November 2000

Date of mailing of the international search report

13.02.01

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Oderwald, H

CT/US 00/18509

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ALBERTS B ET AL: "MOLECULAR BIOLOGY OF THE CELL" MOLECULAR BIOLOGY OF THE CELL,US,BETHESDA, MD, 1994, pages 575-580, XP002152091 ISSN: 1059-1524 cited in the application the whole document ---	
P,X	ROTHERMEL BEVERLY ET AL: "A protein encoded within the Down syndrome critical region is enriched in striated muscles and inhibits calcineurin signaling." JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 275, no. 12, 24 March 2000 (2000-03-24), pages 8719-8725, XP002152092 ISSN: 0021-9258 the whole document -----	1,3,6,7, 9-15,19, 22,25-28

Information on patent family members

CT/US 00/18509

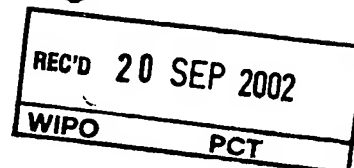
Form PCT/ISA/210 (patent family annex) (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference PF-0711 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/18509	International filing date (day/month/year) 06 JULY 2000	Priority date (day/month/year) 07 JULY 1999
International Patent Classification (IPC) or national classification and IPC IPC(7): C12P 21/061 C12N 1/20, 15/00; C07H 21/04 and US Cl.: 435/69.1, 252.3, 320.1; 536/23.1		
Applicant INCYTE GENOMICS, INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

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TECH CENTER 1600/2900

Date of submission of the demand 23 JANUARY 2001	Date of completion of this report 09 AUGUST 2002
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer TEKCHAND SAIDHA
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0196

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/18509

I. Basis of the report

1. With regard to the **elements** of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
pages 1-70, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the claims:
pages 71-74, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the drawings:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____
- ☒ the sequence listing part of the description:
pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig. NONE

5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/18609

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☒ restricted the claims.
☐ paid additional fees.
☐ paid additional fees under protest.
☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
☒ not complied with for the following reasons:

Please See Supplemental Sheet.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
☐ the parts relating to claims Nos. .

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/18509

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)

Claims 2, 4-5, 8-9, 16-17

YES

Claims 1, 3, 6-7, 11-12

NO

Inventive Step (IS)

Claims 2, 4-5, 8-9, 16-17

YES

Claims 1, 3, 6-7, 11-12

NO

Industrial Applicability (IA)

Claims 1-9, 11-12, 16-17

YES

Claims NONE

NO

2. citations and explanations (Rule 70.7)

Claims 1, 3, 6-7 and 11-12 lack novelty under PCT Article 33(2) as being anticipated by Miyazaki et al. *Journal of biological chemistry*, 14 July 1999. Miyazaki et al. teach isolated DNA and polypeptide sequences from human skin fibroblast. Claim 1 recites 'biologically active or immunogenic fragment' of SEQ ID NO : 1-2. There is no limitation present in claim 1 or its dependent claims that restricts the size of the claimed polypeptide/ polynucleotide, and where the biological or immunological activity are broad terms and such is taught by the reference. Claim 11 recites '70% sequence identity to polynucleotide sequence of SEQ ID NO : 3-4'. Claim 12 recites 'at least 60 contiguous nucleotides'. In view of non-compliance with the sequence rules, and in relying upon the international search report designating Miyazaki et al. reference to be X reference for claims 1, 3, 6-7 & 11-12, it is assumed that claimed sequences have at least 70% sequence similarity and 'at least 60 contiguous nucleotides' matches, therefore, the reference anticipates the claims.

Claims 2, 4-5, 8-9, and 16-17 meet the criteria set out in PCT Article 33(2) and (3), because the prior art does not teach or fairly suggest the claimed invention.

Claims 1-9, 11-12 and 16-17 meet the criteria set out under PCT Article 33(4), because the subject matter claimed can be made or used in industry.

NEW CITATIONS

NONE

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

IV. LACK OF UNITY OF INVENTION:

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2, and 13.3 is not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-9, 11-12 & 16-17, drawn to a polypeptide (SEQ ID NOs : 1-2, DETX polypeptide, composition comprising the polypeptide, nucleic acid encoding the polypeptide, vector, host cell and method of making the polypeptide.

Group II, claim(s) 10, drawn to an antibody.

Group III, claim(s) 13-15, drawn to a method of detecting a target polynucleotide by hybridization of a sample by a probe.

Group IV, claim(s) 18, drawn to a method of treating a disease or condition associated with decreased expression of functional DETX.

Group V, claim(s) 19-21, drawn to a method of screening a compound for effectiveness as an 'agonist', composition comprising the agonist and a method of use.

Group VI, claim(s) 22-24, drawn to a method of screening a compound for effectiveness as an 'antagonist', composition comprising the antagonist and a method of use.

Group VII, claim(s) 25, drawn to a method of screening a compound that specifically binds to the polypeptide (DETX).

Group VIII, claim(s) 26, drawn to a method of screening a polypeptide modulator.

Group IX, claim(s) 27, drawn to a method of screening a compound for altering expression of a target polynucleotide.

Group IX, claim 28, drawn to a method of assessing toxicity of a test compound.

The inventions listed as Groups I-X do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I has a special technical feature of the nucleotide sequence encoding the DETX polypeptide, which Groups II-X do not share; Group II has a special technical feature of an antibody, which Groups I & III-X do not share; Group III-X employ nucleic acids and polypeptides of Group I in methods for treatment of disease, screening 'agonist', 'antagonist', 'binding agents', 'modulators', compounds for 'altered expression of target polynucleotide' or 'assessing toxicity, however, in view of 37 CFR 1.475 (b), when claims corresponding to different categories of inventions are present then only (3) applies and additional methods of use are deemed to lack unity.